

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P28730/WO Kf	FOR FURTHER ACTION		See Form PCT/HP/A/416
International application No. PCT/EP2004/012146	International filing date (day/month/year) 27.10.2004	Priority date (day/month/year) 12.11.2003	
International Patent Classification (IPC) or national classification and IPC H01P5/18			
Applicant ROHDE & SCHWARZ GMBH & CO. KG			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/012146

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☐ the international application as originally filed/furnished

- ☒ the description:

pages 1-6 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

- ☒ the claims:

nos. 1-8 as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* _____ received by this Authority on _____

nos.* _____ received by this Authority on _____

- ☒ the drawings:

sheets 1/3-3/3 as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs. _____

☐ the sequence listing (specify): _____

☐ any table(s) related to sequence listing (specify): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs. _____

☐ the sequence listing (specify): _____

☐ any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>1-8</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims <u>1-8</u>	YES
	Claims _____	NO
Industrial applicability (IA)	Claims <u>1-8</u>	YES
	Claims _____	NO

2. Citations and explanations (Rule 70.7)

1. This report makes reference to the following document:

D1: US-A-5 148 132 (CHAPPELL ET AL), 15 September 1992
(1992-09-15)

2. Document D1 is considered to constitute the prior art closest to the subject matter of claim 1 and discloses (the references in parentheses are to that document):

a directional coupler having
a first lead (figure 4, (124)) for feeding in and out a wave, and a first decoupling lead (figure 4, (122)) for decoupling a coupled wave, both leads being connected by a first network (figure 4, (119, 118)) to the first connection surface (figure 4, (120)) of the inner conductor and outer conductor of a coaxial cable (figure 4), and a second lead (figure 4) for feeding in and out the wave fed in or out by the first lead, and a second decoupling lead for decoupling a coupled wave, these two leads being connected to the second

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connection surface of the inner conductor and outer conductor of the coaxial cable by a second network (figure 4).

The subject matter of claim 1 therefore differs from the known directional coupler described in D1 in that

- the coaxial cable is bent, and its first and second connection surfaces are substantially parallel to a planar printed-circuit board which contains the first lead, the second lead, the first decoupling lead and/or the second decoupling lead.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

The present invention can therefore be considered to address the problem of providing a directional coupler with coaxial cable technology in which the mechanical and also electric connection between the coaxial cable and the leads of the directional coupler is implemented with minimal additional equipment outlay.

The solution to this problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)) for the following reasons:

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No prior art document is known which solves this problem in the same manner, or which prompts a person skilled in the art to arrive at the proposed solution by combining different documents.

Claims 2-8 are dependent on claim 1 and thus also meet the PCT novelty and inventive step requirements.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP2004/012146

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01P5/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01P H03H H03F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base used, where practical, search terms used)

EPO-Internal, PAJ, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 148 132 A (CHAPELL ET AL) 15 September 1992 (1992-09-15) column 1, line 52 - column 2, line 21; figure 4 column 4, line 1 - line 22	1
A	US 3 654 570 A (CALVIN J. THOMAS) 4 April 1972 (1972-04-04) column 2, line 32 - line 56; figure 3	1
A	DE 23 50 186 A1 (SIEMENS AG; SIEMENS AG, 1000 BERLIN UND 8000 MUENCHEN) 24 April 1975 (1975-04-24) page 7, line 7 - line 21; figure 4	1

-/-

☒ Further documents are listed in the continuation of box C☒ Patent family members are listed in annex

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another claim or other special reason (as specified)

O document relating to an oral disclosure, use, exhibition or other practice

P document published prior to the international filing date but later than the priority date claimed

T Inter document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

Z document member of the same patent family

Date of the actual completion of the international search

31 January 2005

Date of mailing of the international search report

07/02/2005

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INTERNATIONAL SEARCH REPORT

International Application No.

P1/EP2004/012146

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN vol. 018, no. 509 (E-1610), 26 September 1994 (1994-09-26) & JP 06 177618 A (MURATA MFG CO LTD), 24 June 1994 (1994-06-24) abstract</p> <p>-----</p>	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5148132	A	15-09-1992	WO	9213370 A1	06-08-1992
US 3654570	A	04-04-1972	NONE		
DE 2350186	A1	24-04-1975	NONE		
JP 06177618	A	24-06-1994	NONE		